

## 3.6 ENERGY

This section evaluates the potential energy impacts associated with the adoption and implementation of the proposed Project. This section describes the regulatory framework and existing conditions; identifies criteria used to determine impact significance; provides an analysis of the potential energy impacts; and identifies proposed General Plan 2045 goals and policies that would minimize potentially significant impacts.

As detailed in Chapter 3, *Environmental Analysis*, no concerns related to energy impacts of the proposed Project were received during the EIR scoping period.

### TERMINOLOGY

The following terminology is used throughout this section::

- **BTU.** British thermal unit. A standard unit of measurement that is used to represent the energy content of heating fuels (e.g., natural gas, propane) and is equal to the amount of heat needed to raise the temperature of one pound of water by one degree Fahrenheit.
- **CALGreen.** California Green Building Code (California Code of Regulations [CCR], Title 24, Part 11). Encompasses only Part 11 of the California Building Standards Code (CBSC), which stipulates water, waste, and design efficiencies as well as electric vehicle (EV) charging standards.
- **CEC.** California Energy Commission. A State agency within the California Natural Resources Agency that sets energy policy and building energy efficiency standards, develops the State's energy growth demand projections, engages in long-term power generation resource planning, and approves power plant siting.
- **CPUC.** California Public Utilities Commission. An independent State regulatory commission that oversees investor-owned utilities (e.g., electric, gas, water, telecommunications) by setting rates and procurement requirements in alignment with CEC energy policy and California Independent System Operator (CAISO) grid operations.
- **CBSC.** California Building Standards Code. Includes all individual parts to CCR, Title 24.
- **Energy Code.** California Building Energy Efficiency Standards (CCR, Title 24, Part 6). encompasses only Part 6 of the CBSC, which stipulates energy-efficiency standards for new projects.
- **kWh.** Kilowatt-hour. A standard unit of measurement that is used to represent the amount of electricity consumed or supplied and is equivalent to approximately 3,412 BTUs.
- **MWh.** Megawatt-hour. One MWh is equal to 1,000 kWh.
- **GWh.** Gigawatt-hour. One GWh is equal to 1,000 MWh or 1,000,000 kWh.
- **VMT.** Vehicle miles traveled.

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### 3.6.1 Regulatory Framework

#### FEDERAL

##### **Federal Energy Policy and Conservation Act**

The Energy Policy and Conservation Act of 1975 created the Strategic Petroleum Reserve, established vehicle fuel economy standards, and prohibited the export of United States crude oil (with a few limited exceptions). It also created Corporate Average Fuel Economy (CAFE) standards for passenger cars that are updated periodically to account for changes in vehicle technologies, driver behavior, and/or driving conditions.

On March 30, 2020, the United States Environmental Protection Agency (USEPA) finalized an updated CAFE and greenhouse gas (GHG) emissions standards for passenger cars and light trucks and established new standards known as the Safer Affordable Fuel Efficient (SAFE) Vehicles Final Rule for Model Years 2021 through 2026. Overall, the new CAFE standards require a fleet average of 49 miles per gallon (mpg) for passenger vehicles and light trucks for model year 2026, which would be a 10 mpg increase relative to model year 2021 (NHTSA 2022).

##### **Federal Regulatory Rollbacks on Fuel Standards**

On June 7, 2024, the National Highway Traffic Safety Administration (NHTSA) announced final CAFE standards for passenger cars and light trucks built in model years 2027 to 2031 and final fuel-efficiency standards for heavy-duty pickup trucks and vans built in model years 2030 to 2035. The final rules establish standards that would require an industry fleetwide average of approximately 50.4 mpg for passenger cars and light trucks in model year 2031, by increasing fuel economy by 2 percent year over year for passenger cars (model years 2027–2031) and for light trucks (model years 2029–2031). For heavy-duty pickup trucks and vans, the final rule would increase fuel efficiency at a rate of 10 percent per year (model years 2030–2032) and 8 percent per year (model years 2033–2035) (NHTSA 2024).

In June 2025, NHTSA published a final rule, “Resetting the Corporate Average Fuel Economy Program.” The rule identifies factors statutorily prohibited from consideration when setting maximum feasible fuel economy standards under the Energy Policy and Conservation Act of 1975, the Energy Independence and Security Act of 2007, and other applicable laws. It also describes NHTSA’s authority to bring the CAFE program into compliance with relevant statutory requirements, in accordance with President Trump’s “Unleashing American Energy” Executive Order and the Secretary’s “Fixing the CAFE Program” Memorandum. The rule also describes NHTSA’s interpretation of its authority for a commercial medium- and heavy-duty on-highway vehicle and work truck fuel-efficiency improvement program, to establish the necessary legal foundation to bring that program into compliance with law. This rule itself does not change existing CAFE or medium- and heavy-duty standards. During the rulemaking process for replacement standards, NHTSA will exercise its enforcement authority regarding all existing

CAFE and medium- and heavy-duty standards in accordance with the interpretation set forth in this rulemaking (NHTSA 2025).

In addition, in May 2025, Congress passed three Congressional Review Act (CRA) resolutions to nullify a set of California’s Clean Air Act (CAA) preemption waivers targeting California’s vehicle emissions program (Holland & Knight 2025):

- H.J.Res. 87 disapproves the USEPA’s waiver for multiple California heavy-duty vehicle programs, including Advanced Clean Trucks (requiring increasing percentages of zero-emission truck sales), Zero Emission Airport Shuttles, and Zero-Emission Power Train Certification.
- H.J.Res. 88 disapproves the USEPA’s waiver for Advanced Clean Cars II, which required all new passenger cars, trucks, and SUVs sold in California to be zero-emission by 2035.
- H.J.Res. 89 disapproves the USEPA’s waiver for the “Omnibus” Low NO<sub>x</sub> regulation, which establishes more stringent emissions standards for heavy-duty vehicles.

### **Energy Independence and Security Act of 2007**

The Energy Independence and Security Act of 2007 (Public Law 110-140) seeks to provide the nation with greater energy independence and security by increasing the production of clean renewable fuels; improving vehicle fuel economy; and increasing the efficiency of products, buildings, and vehicles. It also seeks to improve the energy performance of the federal government. The act sets increased CAFE Standards; the Renewable Fuel Standard; appliance energy-efficiency standards; building energy-efficiency standards; and accelerated research and development tasks on renewable energy sources (e.g., solar energy, geothermal energy, and marine and hydrokinetic renewable energy technologies), carbon capture, and sequestration.

### **Energy Policy Act of 2005**

The Energy Policy Act includes a comprehensive set of provisions to address energy issues. This act includes tax incentives for energy conservation improvements in commercial and residential buildings, fossil fuel production and clean coal facilities, and construction and operation of nuclear power plants, among other things. Subsidies are also included for geothermal, wind energy, and other alternative energy producers.

### **Natural Gas Pipeline Safety Act of 1968**

The Natural Gas Pipeline Safety Act of 1968 authorizes the United States Department of Transportation (USDOT) to regulate pipeline transportation of flammable, toxic, or corrosive natural gas and other gases as well as the transportation and storage of liquefied natural gas. The Pipeline and Hazardous Materials Safety Administration within USDOT develops and enforces regulations for the safe, reliable, and environmentally sound operation of the nation’s 2.6-million-mile pipeline transportation system.

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### STATE

#### Warren-Alquist Act

The Warren-Alquist Act created the California Energy Commission (CEC) in response to the energy crisis of the early 1970s and the state's unsustainable growing demand for energy resources. The CEC's core responsibilities include advancing State energy policy, encouraging energy efficiency, certifying thermal power plants, investing in energy innovation, developing renewable energy, transforming transportation, and preparing for energy emergencies. The Warren-Alquist Act gives the CEC authority to update energy-related standards on a three-year cycle.

#### California Energy Commission

The CEC was created as the State's principal energy planning organization to meet the energy challenges facing the state. The CEC is charged with six basic responsibilities when designing state energy policy:

- Forecast statewide electricity needs
- License power plants to meet those needs
- Promote energy conservation and efficiency measures
- Develop renewable energy resources and alternative energy technologies
- Promote research, development, and demonstration
- Plan for and direct the State's response to energy emergencies

#### Long-Term Energy-Efficiency Strategic Plan

In September 2008, the California Public Utilities Commission (CPUC) adopted the Long-Term Energy-Efficiency Strategic Plan, which provides a framework for energy efficiency in California through the year 2020 and beyond. It articulates a long-term vision, as well as goals for each economic sector, identifying specific near-term, mid-term, and long-term strategies to assist in achieving these goals. This plan sets forth the following four goals, known as Big Bold Energy Efficiency Strategies, to achieve significant reductions in energy demand:

- All new residential construction in California will be zero net energy by 2020;<sup>1</sup>
- All new commercial construction in California will be zero net energy by 2030;
- Heating, ventilation, and air conditioning (HVAC) will be transformed to ensure that energy performance is optimal for California's climate; and

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<sup>1</sup> Zero net energy buildings are buildings where the total amount of energy used by the building on an annual basis is equal to or less than the amount of renewable energy created on the site.

- All eligible low-income customers will be given the opportunity to participate in the low-income energy-efficiency program by 2020.

With respect to the commercial sector, the plan notes that commercial buildings, which include schools, hospitals, and public buildings, consume more electricity than any other end-use sector in California. The commercial sector's five billion-plus square feet of space accounts for 38 percent of the state's power use and over 25 percent of natural gas consumption. Lighting, cooling, refrigeration, and ventilation account for 75 percent of all commercial electric use, while space heating, water heating, and cooking account for over 90 percent of natural gas use (CPUC 2011).

The CPUC and CEC have adopted the following goals to achieve zero net energy levels by 2030 in the commercial sector:

- **Goal 1:** New construction will increasingly embrace zero net energy performance (including clean, distributed generation), reaching 100 percent penetration of new starts in 2030;
- **Goal 2:** 50 percent of existing buildings will be retrofit to zero net energy by 2030 through achievement of deep levels of energy efficiency and with the addition of clean distributed generation; and
- **Goal 3:** Transform the commercial lighting market through technological advancement and innovative utility initiatives.

## **Renewable Portfolio: Carbon Neutrality Regulations**

### *Senate Bill 100*

Senate Bill (SB) 100 was signed into law to replace the Clean Energy and Pollution Reduction Act (SB 350) requirements. Under SB 100, the Renewable Portfolio Standards (RPS) for public-owned facilities and retail sellers consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Additionally, SB 100 also established a new RPS requirement of 50 percent by 2026. Furthermore, the bill also establishes an overall State policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all State agencies by December 31, 2045. Under SB 100, the State cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

### *Clean Energy, Jobs, and Affordability Act of 2022*

The Clean Energy, Jobs, and Affordability Act of 2022, commonly known by its legislative bill number, SB 1020, requires renewable energy and zero-carbon resources to supply 90 percent of all retail electricity sales by 2035 and 95 percent by 2040. Additionally, this act requires all State

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agencies to procure 100 percent of electricity from renewable energy and zero-carbon resources by 2035.

### **Energy-Efficiency Regulations**

#### *Appliance Efficiency Regulations*

California's Appliance Efficiency Regulations contain energy performance, energy design, water performance, and water design standards for appliances (including refrigerators, ice makers, vending machines, freezers, water heaters, fans, boilers, washing machines, dryers, air conditioners, pool equipment, and plumbing fittings) that are sold or offered for sale in California (Title 20 CCR Parts 1600–1608). These standards are updated regularly to allow consideration of new energy-efficiency technologies and methods.

#### *California Building Energy Code*

Energy conservation standards for new residential and nonresidential buildings were adopted by the CEC (Title 24 CCR Part 6). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On September 11, 2024, the CEC adopted the 2025 Building Energy Efficiency Standards, which were subsequently approved by the California Building Standards Commission in December 2024. The Energy Code standards require mixed-fuel single-family homes to be electric-ready to accommodate replacement of gas appliances with electric appliances. In addition, the new standards also include prescriptive photovoltaic system and battery requirements for high-rise, multifamily buildings (i.e., more than three stories) and noncommercial buildings such as hotels, offices, medical offices, restaurants, retail stores, schools, warehouses, theaters, and convention centers. The 2028 Building Energy Efficiency Standards will replace the 2025 Building Energy Efficiency Standards and will become effective on January 1, 2029.

#### *California Green Building Standards Code*

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Title 24 CCR Part 11, known as "CALGreen") was adopted as part of the CBSC. It includes mandatory requirements for new residential and nonresidential buildings throughout California. CALGreen is intended to (1) reduce GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives from the Governor. CALGreen contains requirements for construction site selection, stormwater control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. The code provides design options allowing the designer to determine how best to

achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency (Title 24 CCR Part 11). The 2028 Green Building Standards will replace the current version of CALGreen and will become effective on January 1, 2029.

## **Off-Road Equipment and Transportation-Related Regulations**

### *Assembly Bill 1493 (Pavley Law)*

California vehicle GHG emission standards were enacted under Assembly Bill (AB) 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the USEPA. In 2012, the USEPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model year 2017 through 2025 light-duty vehicles (see also the discussion on the update to the CAFE standards above under the “Federal” subheading). In January 2012, the California Air Resources Board (CARB) approved the Pavley Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California’s Advanced Clean Car program new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions (CARB 2017).

### *California Code of Regulations: Title 13, Chapter 9, Article 4.8, Section 2449*

Title 13 of the CCR, Chapter 9, Article 4.8, Section 2449 limits nonessential idling of fleets to no more than five consecutive minutes at any location. This idling restriction applies to all vehicles in California with a diesel-fueled or alternative diesel-fueled off-road engine, unless a waiver provides sufficient justification that such idling is necessary.

### *Sustainable Communities and Climate Protection Act*

In 2008, the Sustainable Communities and Climate Protection Act, commonly known as its legislative bill number SB 375, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce vehicle-miles traveled (VMT) and vehicle trips. Specifically, this act required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning

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organizations (MPOs). The City of Livermore is not an MPO and is therefore not subject to the requirements of SB 375 (CARB 2018). The Metropolitan Transportation Commission (MTC) acts as the Regional Transportation Planning Agency for the region.

### *Executive Order N-79-20*

On September 23, 2020, Executive Order (EO) N-79-20 was issued, which sets a time frame for the transition to zero-emissions (ZE) passenger vehicles and trucks in addition to off-road equipment. It directs CARB to develop and propose the following:

- Passenger vehicle and truck regulations requiring increasing volumes of new zero-emission vehicles (ZEVs) sold in California toward the target of 100 percent of in-state sales by 2035.
- Medium- and heavy-duty vehicle regulations requiring increasing volumes of new ZE trucks and buses sold and operated in California toward the target of 100 percent of the fleet transitioning to ZEVs by 2045 everywhere feasible, and for all drayage trucks<sup>2</sup> to be ZE by 2035.
- Strategies to achieve 100 percent zero emissions from all off-road vehicles and equipment operations in California by 2035, in cooperation with other State agencies, the USEPA, and local air districts.

On August 25, 2022, CARB adopted the Advanced Clean Cars II regulations that codify the EO goal of 100 percent of in-state sales of new passenger vehicles and trucks be ZE by 2035. Starting in year 2026, Advanced Clean Cars II requires that 35 percent of new vehicles sold be ZE or plug-in hybrids.

### *Advanced Clean Fleets Regulation*

In April 2023, CARB released the Advanced Clean Fleets (ACF) regulation to accelerate the transition to zero-emission medium- and heavy-duty vehicles (CARB 2023). In conjunction with the Advanced Clean Trucks regulation, the ACF regulations helps to ensure that medium- and heavy-duty ZEVs are brought to the market, by requiring certain fleets to purchase ZEVs. The ACF ZEV phase-in approach which provides initial focus where the best fleet electrification opportunities exist, sets clear targets for regulated fleets to make a full conversion to ZEVs, and creates a catalyst to accelerate development of a heavy-duty public infrastructure network. The ACF regulations would also establish requirements that transform the medium- and heavy-duty vehicle sector and demonstrate independent utility.

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<sup>2</sup> Drayage trucks are in-use class 7 and 8 on-road vehicles that transport containers and bulk goods to and from seaports and intermodal railyards. Land ports of entry, which provide controlled entry to or departure from the United States, are not considered seaports or intermodal railyards.

The ACF regulations cover four main elements:

- **Manufacturer sales mandate.** Manufacturers may sell only zero-emission medium- and heavy-duty vehicles starting in 2036.
- **Drayage fleets.** Trucks must be registered in the CARB Online System to conduct drayage activities in California. Non-zero-emission “legacy” drayage trucks were able to register in the CARB Online System through December 31, 2023. Legacy drayage trucks can continue to operate through their minimum useful life. Beginning January 1, 2024, only zero-emission drayage trucks may register in the CARB Online System. All drayage trucks entering seaports and intermodal railyards would be required to be zero-emission by 2035.
- **High priority and federal fleets.** High priority and federal fleets must comply with the Model Year Schedule or may elect to use the optional ZEV Milestones Option to phase-in ZEVs into their fleets:
  - Model Year Schedule: Fleets must purchase only ZEVs beginning 2024 and, starting January 1, 2025, must remove internal combustion engine vehicles at the end of their useful life as specified in the regulation.
  - ZEV Milestones Option (Optional): Instead of the Model Year Schedule, fleets may elect to meet ZEV targets as a percentage of the total fleet starting with vehicle types that are most suitable for electrification.
- **State and local agencies.** State and local government fleets, including city, county, special district, and State agency fleets, would be required to ensure 50 percent of vehicle purchases are zero-emission beginning in 2024 and 100 percent of vehicle purchases are zero-emission by 2027. Small government fleets (those with 10 or fewer vehicles) and those in designated counties would start their ZEV purchases beginning in 2027. Alternately, State and local government fleet owners may elect to meet ZEV targets using the ZEV Milestones Option. State and local government fleets may purchase either ZEVs or near-ZEVs, or a combination of ZEVs and near-ZEVs, until 2035. Starting in 2035, only ZEVs will meet the requirements.

## Energy Storage

California has set ambitious long-term goals for energy storage beyond 2026 to support its clean energy and climate goals. The state aims to reach 100 percent carbon-free electricity by 2045, which will require significant investment in renewable energy sources like wind and solar, as well as energy storage technologies to balance the variability of these sources.

The California Independent System Operator (CAISO) is responsible for managing the electricity grid for much of California and has a total energy storage capacity of more than 3,160 megawatts (MW) as of June 2022 and has increased this to over 16,942 megawatts storage capacity as of December 2025, with an additional 8,600 megawatts of storage planned to come online by 2027 (CAISO 2022; CEC 2025d; CESA 2025). This includes both large-scale and distributed energy storage systems, such as batteries, pumped hydroelectric storage, and

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thermal storage. As part of SB 100, load-serving entities (LSEs) were required to procure no less than 1.3 gigawatts (GW) of energy storage capacity by 2020, and 3 GW by 2030. Additionally, the CPUC has established a target of 15 GW of energy storage capacity by 2030 (CPUC 2022).

### *The Integrated Resource Plan*

CAISO develops a coordinated grid management plan to integrate the generation and storage capacities of LSEs, called the Integrated Resource Plan (IRP). The IRP is a comprehensive planning document that outlines CAISO's forecasts for electricity demand, supply, and transmission needs over a 20-year planning horizon, as well as its strategies for integrating renewable energy resources and other grid services to meet those needs. The plan is developed in collaboration with LSEs, regulators, and other stakeholders, and is updated periodically to reflect changes in the energy landscape and evolving policy goals. Overall, the IRP plays a critical role in ensuring the reliability and resilience of California's electricity grid as the state continues to transition to a cleaner and more sustainable energy system. When an individual Battery Energy Storage (BES) facility or generation infrastructure (i.e., solar panels) comes online in California, it is typically included in the IRP through a process known as the Interconnection Queue. The Interconnection Queue is managed by CAISO, which oversees the operation of the State's electricity grid.

### *The Interconnection Queue*

The Interconnection Queue is an application process that functions as a waiting list of proposed electricity generation and storage projects that are seeking to connect to the grid. When a new BES facility or generation infrastructure is proposed, the developer applies to CAISO to request an interconnection to the grid. CAISO evaluates the application to ensure that the facility meets technical and operational requirements, such as voltage regulation and frequency response, and that it can be integrated effectively into the grid. Once the BES facility or generation infrastructure is approved by CAISO, it is assigned a point of interconnection on the grid, and its output is added to the IRP as a resource that can provide electricity and other grid services, such as frequency regulation or ramping support. The facility is then dispatched by CAISO based on its bids into the day-ahead and real-time electricity markets, and its output is used to help balance supply and demand on the grid in real-time. Overall, the Interconnection Queue is an important mechanism for integrating new BES facilities and other electricity resources into the California grid, and for ensuring that the grid remains reliable and resilient as the state continues to transition to a cleaner and more sustainable energy system.

## **REGIONAL**

### **Plan Bay Area 2050**

Association of Bay Area Governments (ABAG) and MTC adopted Plan Bay Area 2050 on October 21, 2021 (ABAG and MTC 2021). Plan Bay Area 2050 provides transportation and environmental strategies to continue to meet the regional transportation-related GHG reduction goals of SB 375. Under the Plan Bay Area 2050 strategies, just under half of all Bay Area households would live within one half mile of frequent transit by 2050, with this share increasing to over 70 percent for households with low incomes. Transportation and environmental strategies that support active and shared modes, combined with a transit-supportive land use pattern, are forecasted to lower the share of Bay Area residents that drive to work alone from over 50 percent in 2015 to 36 percent in 2050. GHG emissions from transportation would decrease significantly as a result of these transportation and land use changes, and the Bay Area would meet the state mandate of a 19-percent reduction in per-capita emissions by 2035 if all strategies are implemented.

To achieve MTC/ABAG's sustainable vision for the Bay Area, the Plan Bay Area land use concept plan for the region concentrates most of the new population and employment growth in the region in Priority Development Areas (PDAs). PDAs are transit-oriented, infill development opportunity areas within existing communities. An overarching goal of the regional plan is to concentrate development in areas where there are existing services and infrastructure rather than allocate new growth to outlying areas where substantial transportation investments would be necessary to achieve the per-capita passenger vehicle, VMT, and associated GHG emissions reductions.

Plan Bay Area 2050 is currently undergoing an update, which is called Plan Bay Area 2050+. Plan Bay Area 2050+ contains 35 strategies representing public policies and investments that can be implemented in the Bay Area by 2050 to help the region build more homes, reduce commute times, and create vibrant downtowns and natural areas for everyone to enjoy. The strategies in Plan Bay Area 2050+ also aim to keep people safe from natural hazards, support a strong economy, and provide stable housing for those who need it most. Unique to the Plan Bay Area 2050+ cycle is the parallel Transit 2050+ planning effort, which culminated in the first-of-its-kind plan to re-envision the future of Bay Area public transit, in partnership with transit operators across the region. While not in effect at the time of this Draft EIR, it is anticipated that the Plan Bay Area 2050+ will be in effect over the course of the General Plan 2045 horizon.

## **LOCAL**

### **Livermore Municipal Code**

The Livermore Municipal Code (LMC) includes various directives pertaining to energy consumption. The code is organized by title, chapter, section, and, in some cases, articles. Most

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provisions related to energy consumption are included in Title 15, *Building and Construction*, as follows:

- **Chapter 15.26, Section 15.26.070, GSBC Section 4.106.4 amended – Electric vehicle (EV) charging for new construction**, requires new residential construction to include EV charging infrastructure consistent with the mandatory measures of the California Green Building Standards Code (CALGreen).
- **Chapter 15.26, Section 15.26.220, GSBC Section 5.106.5.3 amended – Electric vehicle (EV) charging**, requires new nonresidential construction to include EV charging infrastructure consistent with the mandatory measures of CALGreen.
- **Chapter 15.26, Section 15.26.280, GSBC Section 5.106.13.1 added – New construction**, requires new construction to be designed all-electric but provides exemptions for commercial cooking uses where no electric alternative is available, clothes drying equipment for hotels and motels with 80 or more units, and laboratories.

### Livermore Climate Action Plan

The City's 2022 Climate Action Plan (2022 CAP), adopted on November 28, 2022, identifies a series of communitywide strategies to reduce GHG emissions and adapt to extreme weather (City of Livermore 2022). Strategies established in the 2022 CAP include dedicating resources for identified climate protection actions, electrifying buildings and transportation, promoting renewable electricity generation, improving organic waste diversion from landfills, improving carbon sequestration efforts, investing in complete neighborhood to promote active transportation modes, incentivizing investment in green and innovative businesses, and educating and working with the community.

The 2022 CAP established per-capita GHG emission reduction targets aimed to reduce GHG emissions by 40 percent below 1990 levels by 2030 per SB 32 and achieve carbon neutrality by 2045. Various strategies from the 2022 CAP help improve GHG emissions and reduce energy use by promoting building electrification and energy efficiency, expanding renewable and low-carbon energy use, supporting reduction in VMT and EVs, and increasing waste diversion and organics recycling.

The City produces annual progress reports to identify the implementation and funding sources for the strategies identified in the 2022 CAP. The 2024 Progress Report shows that the City has implemented, and is continuing to implement, the majority of its short-term strategies (City of Livermore 2024).

### 3.6.2 Existing Conditions

#### Electricity and Natural Gas Consumption

Electricity is quantified using kilowatts (kW) and kilowatt-hours (kWh), and heating fuels (e.g., natural gas, propane) is measured in Therms or kilo-British thermal units (kBtu). A therm is a measurement of the amount of heat energy in heating fuels, equal to 100 kBtu. A kW is a measure of 1,000 watts of electrical power and a kWh is a measure of electrical energy equivalent to a power consumption of 1,000 watts for one hour. The kWh is commonly used as a billing unit for energy delivered to consumers by electric utilities. According to the CEC’s Electricity Consumption Database, total energy usage in California was 276,213 gigawatt-hours of electricity and 11,964 million Therms in 2023, the latest year of available information (CEC 2025c, 2025e). A gigawatt-hour is equal to one million kWh.

Electricity service in the EIR Study Area is provided by the Pacific Gas and Electric Company (PG&E) and Ava Energy (formerly known as East Bay Community Energy), and natural gas service in the EIR Study Area is provided by PG&E. The existing electricity and natural gas consumption attributable to nonresidential and residential land uses in the EIR Study Area is shown in Table 3.6-1, *Estimated Existing Electricity and Natural Gas Demand in the EIR Study Area*.

**Table 3.6-1 Estimated Existing Electricity and Natural Gas Demand in the EIR Study Area**

Parameter	Electricity Usage (kWh/year) <sup>1</sup>	Natural Gas Usage (Therms) <sup>1</sup>
Residential	188,507,132	13,248,679
Nonresidential	274,709,282	6,078,121
<b>Total</b>	<b>463,216,414</b>	<b>19,326,800</b>
2023 Service Population <sup>2</sup>	145,150	145,150
<b>Per Service Population Consumption</b>	<b>3,191</b>	<b>133</b>

Source: See Appendix B, *Air Quality and Greenhouse Gas Emissions Data*.

Notes: kWh = kilowatt-hours

1. Based on 5-year average electricity and natural gas usage data provided by PG&E and Ava Energy.
2. Service Population accounts for total population and jobs. See Table 2-3, *Proposed 2045 Buildout Projections in the EIR Study Area*, in Chapter 2, *Project Description*.

#### Transportation Fuel Consumption

California has traditionally been one of the top producers of petroleum in the nation, with drilling operations throughout the state. Crude oil production in California and Alaska is in decline, and California refineries have become increasingly dependent on foreign imports (CEC 2025b). According to the United States Energy Information Administration (USEIA), California’s field production of crude oil has steadily declined since the mid-1980s with a total production of

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approximately 104 million barrels in 2024 (USEIA 2025). In Alameda County, including all incorporated cities therein, an estimated 468 million gallons of gasoline and 84 million gallons of diesel fuel were sold in 2023 (CEC 2024). Table 3.6-2, *Existing Operation-Related Annual Fuel Consumption in the EIR Study Area*, shows the estimated annual fuel consumption currently generated under existing baseline conditions. Fuel consumption is based on VMT from external/internal trips.

**Table 3.6-2 Existing Operation-Related Annual Fuel Consumption in the EIR Study Area**

Gas (gal/year)	Diesel (gal/year)	Compressed Natural Gas (gal/year)	Electricity (kWh/year)
27,523,697	7,736,512	294,015	14,275,325

Source: See Appendix B, *Air Quality and Greenhouse Gas Emissions Data*.

Notes: gal = gallons; kWh = kilowatt-hours.

**Energy Providers**

*Electricity*

PG&E is a publicly traded utility company that generates, purchases, and transmits energy and natural gas under contract with CPUC. PG&E’s service territory is 70,000 square miles, roughly extending north to Eureka, south to Bakersfield, west to the Pacific Ocean, and east to the Sierra Nevada.

PG&E’s electricity distribution system consists of 106,681 circuit-miles of electric distribution lines and 18,466 circuit-miles of interconnected transmission lines (PG&E 2026). PG&E owns and maintains local networks of electric transmission and distribution facilities throughout the EIR Study Area. PG&E electricity is generated by a combination of sources such as coal-fired power plants, nuclear power plants, and hydro-electric dams, as well as newer sources of energy, such as wind turbines and photovoltaic plants, also known as solar farms. The bulk electrical grid (collectively referred to as “the Grid”) is a network of high-voltage transmission lines, linked to power plants within the PG&E system. The distribution system, made up of lower-voltage secondary lines, is at the street and neighborhood level, and consists of overhead or underground distribution lines, transformers, and individual service “drops” that connect to the individual customer. While PG&E owns and maintains the distribution infrastructure, both PG&E and Ava Energy provide electricity to the EIR Study Area.

In 2023, PG&E delivered a total of 73,059,129 kWh electricity throughout their service area (CEC 2025c). This total includes power generated by Ava Energy. As shown in Tables 3.6-1 and 3.6-2, the land uses within the EIR Study Area consumed approximately 463,216 MWh from building sources and 14,275 MWh from transportation sources in 2023, or a total of 477,492 MWh in 2023, which accounted for approximately 0.6 percent of PG&E’s electricity delivered in 2023.

Sources of electricity sold by PG&E in 2023 for their standard power service “Base Plan” were as follows (CEC 2025a):

- 32.8 percent eligible renewable resources:
  - 3.4 percent biomass and biowaste
  - 0.3 percent geothermal
  - 2.5 percent small hydroelectric
  - 20.2 percent solar
  - 6.3 percent wind
- 67.2 percent eligible carbon-free resources:
  - 13.8 percent large hydroelectric
  - 53.4 percent nuclear
- 0 percent non-RPS eligible resources:
  - 0 percent coal
  - 0 percent natural gas
  - 0 percent other
  - 0 percent unspecified power (i.e., not traceable to specific sources)

Sources of electricity sold by Ava Energy in 2023 for their standard power service (Bright Choice) were (CEC 2025a):

- 54.8 percent eligible renewable resources:
  - 13.0 percent biomass and biowaste
  - 2.2 percent geothermal
  - 2.5 percent small hydroelectric
  - 5.6 percent solar
  - 31.6 percent wind
- 34.1 percent eligible carbon-free resources:
  - 34.1 percent large hydroelectric
  - 0 percent nuclear
- 11.1 percent non-RPS eligible resources:
  - 0 percent coal
  - 0 percent natural gas
  - 0 percent other
  - 11.1 percent unspecified power (i.e., not traceable to specific sources)

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### *Natural Gas*

PG&E provides natural gas to the EIR Study Area. PG&E's natural gas (methane) pipe delivery system includes over 42,000 miles of distribution pipelines and over 6,000 miles of gas transportation pipelines (PG&E 2026). PG&E purchases gas supplies from producers and marketers in Canada, the Rockies, and the US Southwest (PG&E 2026). PG&E's gas transmission pipeline system serves approximately 4.5 million natural gas customers in northern and central California (PG&E 2026). The system is run under an inspection and monitoring program that operates in real time on a 24-hour basis, and includes leak inspections, surveys, and patrols of the pipelines. Total natural gas consumption in PG&E's service area was 11,967 million Therms in 2023 (CEC 2025e). As shown in Table 3.6-1, the EIR Study Area consumed a total of 19 million Therms in 2023, which accounted for approximately 0.02 percent of PG&E's total natural gas provided in 2023.

### **3.6.3 Standards for Analysis**

#### **SIGNIFICANCE CRITERIA**

Appendix G, *Environmental Checklist Form*, of the CEQA Guidelines states that the proposed Project would result in a significant impact related to energy if it would:

- a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
- b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

Thresholds of significance for energy will be based on consistency with the CEQA Guidelines Appendix F, *Energy Conservation*, energy conservation goals and consistency with the City and State applicable energy efficiency plans, policies, and regulations, including the California Building Energy Efficiency Standards (Title 24, Part 6), CALGreen (24 CCR, Part 11), RPS, and the 2022 CAP, to determine whether the implementation of the proposed Project would result in wasteful, inefficient, or unnecessary consumption of energy resources, during future potential development construction or operation.

#### **APPENDIX F, ENERGY CONSERVATION**

Based on Appendix F, *Energy Conservation*, of the CEQA Guidelines, to ensure energy implications are considered in project decisions, environmental documents should include a discussion of the potential environmental effects of projects, with particular emphasis on avoiding or reducing wasteful, unnecessary, or inefficient use of energy resources. Environmental effects may include a project's energy requirements and its energy use efficiencies by amount and fuel type during demolition, construction, and operation; the effects of a project on local and regional energy supplies; the effects of a project on peak- and base-

period demands for electricity and other forms of energy; the degree to which a project complies with existing energy standards; the effects of a project on energy resources; and the project's projected transportation energy use requirements and its overall use of efficient transportation alternatives, if applicable.

To assist in analyzing whether the proposed Project's energy consumption is considered wasteful, inefficient, or unnecessary, the following energy conservation goals from Appendix F of the CEQA Guidelines are used:

- Decrease overall per-capita energy consumption
- Decrease reliance on fossil fuels such as coal, natural gas, and oil
- Increase reliance on renewable energy sources

Though these energy conservation goals are used in this analysis to determine whether long-term operations of the proposed Project could result in wasteful, inefficient, or unnecessary energy consumption, they are not considered bright-line significance thresholds. While a project may result in an increase in per-capita energy consumption, that does not necessarily mean the consumption of that energy would be wasteful, inefficient, or unnecessary, because the consumption of energy alone does not constitute the wasteful, inefficient, or unnecessary use of energy resources. Because different land use types consume different types of energy resources at different rates depending on that occupancy's operational objectives and energy needs, comparing the per-capita energy consumption of the proposed Project against the existing energy consumption data for the EIR Study Area is informative but not determinative of whether that energy consumption would be wasteful, inefficient, or unnecessary. Therefore, this analysis focuses on whether the use of that energy resource is carried out in a wasteful, inefficient, or unnecessary manner in the context of the Appendix F energy conservation goals and explores whether mitigation may be warranted to ensure that the use of energy resources is not considered wasteful, inefficient, or unnecessary.

### **3.6.4 Project Impact Analysis**

The following energy analysis is based on demographic and land use growth forecasts and evaluates the impacts of the proposed Project compared to the existing conditions at the time the Notice of Preparation was issued in March 2023.

#### **METHODOLOGY**

The following analysis accounts for energy consumption associated with transportation fuels and building electricity and propane use under the proposed Project. The following describes the methodology to estimate energy consumption for these sources:

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- **Building Energy.** Energy consumption associated with electricity and natural gas use for residential and nonresidential land uses in the EIR Study Area was based on the energy information provided by PG&E and Ava Energy. Energy usage for national laboratories (Lawrence Livermore National Laboratory and Sandia National Laboratories) was estimated based on facility square footage and annual energy use factors by land use type from the CalEEMod Users Guide. Forecasts are adjusted for increases in housing units for residential electricity and natural gas use and nonresidential square footage for nonresidential electricity and natural gas use.
- **Transportation.** Transportation energy consumption forecasts were modeled using emissions data with adjusted factors from CARB's EMFAC2021, version 1.0.2 web database.<sup>3</sup> Model runs were based on daily VMT data provided by Kittelson and Associates Inc. (see Appendix B, *Air Quality and Greenhouse Gas Emissions Data*) adjusted for population and employment in the EIR Study Area in calendar year 2023 (existing) and 2045 (forecasted) emission rates. The VMT is based on the origin-destination method using the Alameda Countywide Transportation Model based on the recommendations of CARB's Regional Targets Advisory Committee under SB 375. Consistent with CARB's methodology within the Climate Change Scoping Plan Measure Documentation Supplement (CARB n.d.), daily VMT was multiplied by 347 days per year to account for reduced traffic on weekends and holidays to determine annual emissions.

- 
- a) **Would the project result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?**
- 

**Less than significant.**

### Construction

Construction of development projects facilitated by the proposed Project would create temporary demand for electricity. Natural gas is not generally required to power construction equipment and, therefore, is not anticipated during construction phases. Electricity use would fluctuate according to the phase of construction. Additionally, it is anticipated that most electric-powered construction equipment would be hand tools (e.g., power drills, table saws, compressors) and lighting, which would result in minimal electricity usage during construction activities.

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<sup>3</sup> EMFAC2021 projections assumed implementation of California's Advanced Clean Trucks Regulation and the Heavy-Duty Low NO<sub>x</sub> Omnibus Regulation, which had been authorized by USEPA waivers under the CAA. These regulations were disapproved by congressional resolutions H.J. Resolution 87 and H.J. Resolution 89, respectively, which were signed by the President on June 12, 2025. The CARB adjustment factors released for EMFAC2021 address the effects of the resolutions on the forecasted data in EMFAC2021.

Construction of development projects facilitated by the proposed Project would also temporarily increase demands for energy associated with transportation fuels. Transportation energy use depends on the type and number of trips, VMT, fuel efficiency of vehicles, and travel mode. Energy use during construction would come from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction employee vehicles that would use diesel fuel or gasoline. The use of energy resources by these vehicles would fluctuate according to the phase of construction and would be temporary. It is anticipated that most off-road construction equipment, such as those used during demolition and grading, would be gasoline or diesel powered. In addition, operation of construction equipment would cease upon completion of construction for individual development projects.

Construction contractors would be required to minimize nonessential idling of construction equipment during construction in accordance with Title 13 of the CCR, Chapter 9, Article 4.8, Section 2449. Such required practices would limit wasteful and unnecessary energy consumption. The proposed Project does not envision any unusual development or project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of California.

Therefore, short-term construction activities that occur as a result of implementation of the proposed Project would not result in inefficient, wasteful, or unnecessary fuel consumption.

## **Operation**

Operation of future development would create additional demand for energy resources compared to existing conditions. This section covers the operational use of electricity and heating fuels (e.g., propane), including heating, cooling, and ventilation of buildings; water heating; operation of electrical systems; use of on-site equipment and appliances; lighting; and charging EVs. The proposed Project would also result in additional demand for transportation fuels (e.g., gasoline, diesel, compressed natural gas, and electricity) associated with on-road vehicles.

As discussed under Section 3.6.3, *Standards for Analysis*, the following energy conservation goals are considered to assist in analyzing whether the proposed Project's operational energy consumption could be considered not wasteful, inefficient, or unnecessary:

- Decrease overall per-capita energy consumption
- Decrease reliance on fossil fuels such as coal, natural gas, and oil
- Increase reliance on renewable energy sources

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*Overall per-Capita Energy Consumption*

**Building Electricity**

Electrical service would be provided by PG&E and Ava Energy and delivered by PG&E through connections to existing off-site electrical lines and new on-site infrastructure. As shown in Table 3.6-3, *Year 2045 Forecast Electricity Consumption*, by horizon year 2045, electricity use in the EIR Study Area is estimated to increase by 142,543,682 kWh/year, or approximately 31 percent, from existing conditions; however, the EIR Study Area’s service population would increase by 49,930 people, or approximately 34 percent. As a result, the average per-service population electricity consumption is estimated to decrease from 3,191 kWh per person per year in existing baseline to 3,105 kWh per person per year in 2045, or a decrease of approximately 86 kWh per person annually.

**Table 3.6-3 Year 2045 Forecast Electricity Consumption**

Area	Electricity Usage, kWh per Year (Subtotal) <sup>1</sup>		
	Existing Baseline <sup>2</sup>	Year 2045 Forecast <sup>3</sup>	Net Change
Nonresidential	274,709,282	322,457,219	47,747,937
Residential	188,507,132	283,302,877	94,795,745
<b>Total</b>	<b>463,216,414</b>	<b>605,760,096</b>	<b>142,543,682</b>
Service Population <sup>4</sup>	145,150	195,080	49,930
Per Service Population Annual Consumption	3,191	3,105	-86

Source: See Appendix B, *Air Quality and Greenhouse Gas Emissions Data*.

Notes: kWh = kilowatt-hours

1. Totals may not add due to rounding.
2. Electricity usage is provided by PG&E and Ava Energy.
3. Residential and nonresidential energy forecasts are adjusted for increases in housing and nonresidential square footage in the EIR Study Area and does not account for future building fuel switching (i.e., switching from natural gas to all-electric building design).
4. Service Population consists of the aggregate of total employees and population within the EIR Study Area.

Future development would be required to demonstrate compliance with the current Energy Code and CALGreen standards in effect at the time the individual development applications are submitted and, because it is anticipated that each new code cycle for the CBSC will require higher performance for energy efficiency and incorporate additional requirements for on-site renewable energy and EV charging infrastructure, future development can be expected to be more energy-efficient than current uses, resulting in reductions in electricity consumption on a per-dwelling-unit and per-square-foot basis when compared to existing development. It is unknown how much more energy-efficient future iterations of the Energy Code and CALGreen

standards would be in 2045 compared to existing conditions as those code updates are released on a three-year cycle.

**Building Heating Fuels**

As shown in Table 3.6-4, *2045 Forecast Natural Gas Consumption in the EIR Study Area*, natural gas use in the EIR Study Area would total 27,045,699 Therms annually under buildout conditions. By 2045, natural gas use in the EIR Study Area is estimated to increase by 7,718,899 Therms annually, or an approximately 40-percent increase.

To provide a conservative, “worst-case” analysis, the proportion of households using natural gas, and the amount of natural gas consumed annually by dwelling unit and nonresidential square foot, are conservatively assumed to remain the same between existing conditions and buildout conditions. The Year 2045 forecast in Table 3.6-4 does not account for potential reductions resulting from compliance with the Energy Code and CALGreen, nor future improvements in building and heating appliance design. As a result, the per-service population natural gas consumption is estimated to increase by approximately 5 Therms per person per year in 2045 due to the increase in development and population growth in the EIR Study Area.

**Table 3.6-4 2045 Forecast Natural Gas Consumption in the EIR Study Area**

Area	Natural Gas Usage, Therms per Year <sup>1</sup>		
	Existing Baseline	Proposed Project (2045)	Net Change
Nonresidential	6,078,121	7,134,575	1,056,454
Residential	13,248,679	19,911,124	6,662,445
<b>Total</b>	<b>19,326,800</b>	<b>27,045,699</b>	<b>7,718,899</b>
2045 Service Population <sup>2</sup>	145,150	195,080	49,930
Per Service Population Annual Consumption	133	139	5

Notes:

1. Residential and nonresidential energy forecasts are adjusted for increases in housing and employment, respectively, in the EIR Study Area and do not account for reductions in consumption due to compliance with energy efficiency from compliance with future Energy Code and CALGreen standards. Totals may not add due to rounding.
2. Service Population consists of the aggregate of total employees and population within the EIR Study Area.

Similar to electricity consumption, future development would be required to demonstrate compliance with the current Energy Code and CALGreen standards in effect at the time of construction and would result in improved efficiency in heating fuel (i.e., propane) consumption on a per-dwelling-unit and per-square-foot basis when compared to existing development. This would reduce energy consumption in new development facilitated under the proposed Project relative to existing conditions for comparable development types. However, to provide a

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conservative analysis, per-service-population natural gas consumption is estimated to increase slightly in 2045 compared to existing baseline conditions.

**Transportation Energy**

Table 3.6-5, *Operation-Related Annual Fuel Usage: Net Change from Existing*, shows the net change in VMT, fuel usage, and fuel efficiency under buildout conditions (2045) compared with existing baseline (2023) year conditions.

**Table 3.6-5 Operation-Related Annual Fuel Usage: Net Change from Existing**

Fuel Type	Existing Baseline Year (2023)	Proposed Project (2045)	Net Change from Existing Baseline
<b>Gasoline</b>			
VMT <sup>1</sup>	678,437,121	836,871,853	158,434,733
Gallons	27,523,697	26,518,461	-1,005,236
Miles Per Gallon	24.65	31.56	7
<b>Diesel</b>			
VMT <sup>1</sup>	57,474,773	73,378,798	15,904,026
Gallons	7,736,512	8,230,201	493,689
Miles Per Gallon	7.43	8.92	1
<b>Compressed Natural Gas</b>			
VMT <sup>1</sup>	1,614,057	1,543,474	-70,583
Gallons	294,015	256,469	-37,545
Miles Per Gallon	5.49	6.02	1
<b>Electricity</b>			
VMT <sup>1</sup>	38,302,219	84,855,732	46,553,513
kWh	14,275,325	30,357,216	16,081,891
Miles Per kWh	2.68	2.80	0
<b>Total VMT</b>	<b>775,828,169</b>	<b>996,649,857</b>	<b>220,821,688</b>
Service Population (SP) <sup>2</sup>	145,150	195,080	49,930
<b>VMT/SP</b>	<b>5,345</b>	<b>5,109</b>	<b>-236</b>

Source: EMFAC 2021 (v.1.0.2); see Appendix B, *Air Quality and Greenhouse Gas Emissions Data*.

Notes:

1. Based on daily VMT provided by Kittelson and Associates Inc. (see Appendix B, *Air Quality and Greenhouse Gas Emissions Data*). VMT per year is based on a conversion of VMT x 347 days per year to account for less travel on weekends, consistent with CARB statewide GHG emissions inventory methodology (CARB 2008).
2. Service Population consists of the aggregate of total employees and population within the EIR Study Area.

As shown in Table 3.6-5, total VMT under the proposed Project would increase relative to existing baseline year conditions for all fuel types due to population and employment growth; however, the greatest proportional increase is from EVs. This reflects EMFAC assumptions that a

greater mix of light-duty automobiles would be electric-powered in future years based on current California regulations (e.g., Advanced Clean Cars) and consumer trends. Despite the increase in total VMT, the VMT per service population would decrease by 236 VMT from baseline conditions, indicating that average driving per person would decline.

Although total VMT would increase, the proposed Project includes goals and policies to minimize VMT and therefore reduce the increase in emissions from automobiles, as detailed in Section 3.16, *Transportation*. For example, the proposed Project would encourage infill development to place residences and places of employment closer to one another to support the use of alternative modes of transportation, such as public transit, walking, biking, or other forms of active transportation. Additionally, fuel efficiency of vehicles under year buildout (2045) conditions would improve compared to existing baseline (2023) year conditions because new cars will be more fuel efficient, while older, less fuel-efficient vehicles will age out of public and private fleets. The CAFE standards are not directly applicable to residents or land use development projects, but to car manufacturers. However, compliance with the CAFE standards by car manufacturers would improve the fuel efficiency of future vehicles and would generally result in reduced fuel consumption per vehicle.

Electricity demand would also increase as EV use expands; however, State regulations, such as the RPS, SB 350, and SB 100 require a growing share of electricity to come from renewable sources. As a result, the electricity used to power EVs is expected to become cleaner over time. In combination with improvements in fuel economy standards and energy-efficient building design standards (Energy Code and CALGreen) through 2045, the proposed Project would result in improved efficiencies in transportation energy consumption overall.

### ***Energy Consumption Summary***

LMC Chapter 15.26 and the 2022 CAP would further support the incorporation of electric and energy-efficiency systems in new development. Furthermore, the Land Use (LU) Element, Mobility (MO) Element, and Open Space and Conservation (OS) Element of the proposed General Plan 2045 contain the following goals and policies that are designed to encourage greater efficiency in energy consumption from buildings and transportation by co-locating housing, jobs, and transit:

- **Goal LU-1:** Create a well-integrated, sustainable, and livable community by locating new development in areas that can maximize the use of existing public services and facilities.
  - **Policy LU-1.6: Climate-Responsive and Green Building Practices.** Promote environmentally responsive site and building design that reduces construction impacts and supports long-term climate resilience. Encourage the use of green building practices in both public and private development, consistent with CalGreen and Title 24 standards.

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- **Policy LU-1.9: Infill and Reinvestment.** Prioritize development for locations in or in close proximity to transit, nodes for active transportation, or major commercial sites or other activity centers. Update the Development Code and Specific and Neighborhood Plans accordingly.
- **Goal LU-4:** Establish mixed-use districts that integrate housing, commercial, and employment uses to increase housing supply, support economic vitality, and create walkable neighborhoods with a strong sense of place.
  - **Policy LU-4.1: Mixed-Use District Planning.** Plan and implement high-density mixed-use districts in strategic locations, such as near transit, commercial hubs, and employment centers, to integrate housing, commercial, and employment uses. These districts should be designed to be walkable, inclusive, and compatible with surrounding neighborhoods, supporting the needs of residents, employers, and the workforce.
  - **Policy LU-4.2: Housing Integration and Livability.** Facilitate the inclusion of diverse and affordable housing types within mixed-use developments to promote proximity between jobs and housing, support inclusive communities, and reduce vehicle miles traveled (VMT). Ensure residential components are designed to minimize exposure to noise and traffic impacts, particularly along arterial corridors.
  - **Policy LU-4.5: Multimodal Access and Connectivity.** Design mixed-use districts to support walking, biking, and transit access, reducing reliance on single-occupancy vehicles and enhancing connectivity between homes, jobs, and services.
- **Goal MO-1:** Design and maintain streets that are safe, comfortable, convenient, and accommodate all users.
  - **Policy MO-1.1: Complete Streets Approach.** Plan for Complete Streets that support all transportation systems throughout the city and consider and balance the needs of all users, including vulnerable users and underserved communities.
- **Goal MO-2:** Reduce the number and length of single-occupancy vehicle trips.
  - **Policy MO-2.1: Transportation Mode Choice.** Support and provide viable transportation alternatives to reduce vehicle miles traveled.
  - **Policy MO-2.2: Transportation Priorities.** Make transit and active transportation safe and feasible choices for residents by prioritizing transportation modes as follows: (1) public transit and active transportation, (2) zero-emission vehicles, and (3) fossil fuel vehicles. Support this prioritization through funding, development standards, education, and other allocation of resources.
  - **Policy MO-2.4: Transportation Demand Management (TDM) Implementation.** Promote and implement Transportation Demand Management strategies to reduce vehicle miles traveled and reliance on single-occupancy vehicles across all development types.
    - A. New Development: Require Transportation Demand Management measures through development agreements, partnerships with Transportation Management Associations (TMAs), and collaboration with regional stakeholders.

- B. Existing Development: Encourage adoption of Transportation Demand Management measures by offering incentives such as grants, tax benefits, or reduced fees.
- C. Organizational Support: Provide technical assistance for the formation and operation of Transportation Management Associations and other entities that facilitate Transportation Demand Management programs.
- **Goal MO-3**: Provide comfortable access to jobs, schools, recreation, shopping, and transit on foot or by bicycle as part of daily life in a healthy and active community.
  - **Policy MO-3.1: Active Transportation Plan**. Regularly update and implement the City's Active Transportation Plan as a guide for developing pedestrian, bicycle, and trail networks.
  - **Policy MO-3.2: Bicycle/Pedestrian Connectivity**. Improve connectivity for cyclists and pedestrians between and through neighborhoods and to and from activity centers in collaboration with the community and stakeholders.
- **Goal MO-4**: Make transit a viable option by supporting frequent, reliable, cost-efficient, and connected service.
  - **Policy MO-4.1: Local Transit Ridership**. Increase local transit ridership and service as an alternative to driving by supporting Livermore Amador Valley Transit Authority and Altamont Corridor Express services.
- **Goal OS-6**: Protect and improve Livermore's air quality.
  - **Policy OS-6.10: Vehicle Emissions Reduction**. Work with regional municipalities and State agencies to reduce automobile-related vehicle emissions.
  - **Policy OS-6.11: Vehicle Trip Reduction Incentives**. Develop incentives to reduce vehicle trips and increase ridesharing to reduce pollutants generated by vehicular combustion engines.
  - **Policy OS-6.12: Anti-Idling Requirements**. Reduce and limit idling of municipal, community, and/or commercial vehicles.
  - **Policy OS-6.16: Privately Owned Zero-Emission Equipment**. Work with local and regional partners to publicize the advantage of zero-emission equipment and any available financial incentives.
  - **Policy OS-6.17: Low-Emission City Vehicles**. Purchase City vehicles that have alternative fuel systems with reduced emissions as suitable models are available.
- **Goal OS-7**: Make Livermore strong and resilient by acting to significantly reduce greenhouse gas emissions and adapt to a changing climate.
  - **Policy OS-7.1: Climate Action Plan Updates**. Update the Livermore Climate Action Plan (CAP) at least every five years, maintaining the CAP as a Qualified Greenhouse Gass (GHG) Reduction Strategy under the Guidelines for the California Environmental Quality Act as laid out by the State and Bay Area Air Quality Management District. The CAP shall include an inventory of the level of GHG emissions within the city for a recent year, in

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comparison to a 2005 baseline, and shall set out specific policies and actions to be undertaken by the City to reduce GHG emissions to a level that meets or exceeds State GHG reduction targets. The policies and actions will include incentives, actions, and requirements to reduce the city's GHG emissions, the GHG emissions of the private sector, and actions that the City will take in concert with public agencies, the private sector, and other stakeholders to reduce GHG emissions. Updates to the CAP will include a public and stakeholder engagement process.

- **Policy OS-7.2: Climate Action Plan Implementation.** Continue to implement the Climate Action Plan (CAP). Identify key City staff and partner agencies responsible for implementing CAP strategies and actions. Integrate CAP strategies and actions into annual department workplans and budget. Continue to identify and pursue funding mechanisms for CAP implementation.
- **Goal OS-8:** Promote a clean, reliable, and equitable energy system by increasing energy efficiency, expanding the use of renewable and carbon-free energy sources, and reducing greenhouse gas emissions from buildings, transportation, and infrastructure.
  - **Policy OS-8.1: Climate Action Plan Implementation.** Implement Climate Action Plan strategies to improve energy efficiency and conservation, promote carbon-free energy sources, and reduce energy-related greenhouse gas emissions.
  - **Policy OS-8.2: Per-Capita Energy Use.** Reduce per-capita energy use.
  - **Policy OS-8.3: Clean and Resilient Energy for Public Facilities.** Ensure City facilities and operations use clean, reliable, and resilient energy sources that reduce emissions and support long-term sustainability. Prioritize energy systems that improve efficiency and maintain essential services during power disruptions.
  - **Policy OS-8.4: Sustainable Energy through Electrification.** Develop strategies and standards to advance sustainable energy by requiring efficient, all-electric appliances in new buildings, where feasible. Encourage property owners to transition existing buildings to electric appliances over time through partnerships, incentives, and public education that promotes clean energy.
  - **Policy OS-8.5: Energy-Efficient Development Decisions.** Consider the energy efficiency of proposed development when making land use and development review decisions.
  - **Policy OS-8.6: Solar Access.** Consider solar access, siting structures to maximize natural heating and cooling, and landscaping during the design review process to aid passive cooling protection from prevailing winds and maximize year-round solar access.

Specifically, proposed Policy OS-8.1 would require implementation of the CAP strategies to improve energy efficiency and conservation, promote carbon-free energy sources, and reduce energy-related greenhouse gas emissions. Proposed Policy OS-8.5 would require the City to consider the energy efficiency of proposed development when making land use and development review decisions.

As illustrated, the proposed Project would satisfy this criterion of achieving an overall decrease in per-capita energy consumption and increase efficient consumption of energy resources through 2045.

### *Reliance on Fossil Fuels*

The proposed Project would be considered to conflict with this criterion if it did not take steps to decrease the reliance on fossil fuels. As discussed in Section 3.8, *Greenhouse Gas Emissions*, individual development projects anticipated to occur under the proposed Project would be required to comply with the Energy Code and CALGreen standards in effect at the time of their building application submittal. Because it is anticipated that each new code cycle for the CBSC, which includes the Energy Code (Part 6) and CALGreen (Part 11), will require higher performance for energy efficiency and incorporate additional requirements for on-site renewable energy and EV charging infrastructure, individual development projects would be more energy efficient than existing structures in the EIR Study Area. For example, the 2025 CBSC currently includes provisions for development projects to include rooftop photovoltaic systems and BES infrastructure or demonstrate energy-efficiency performance equivalent to including photovoltaic and BES features. The 2028 CBSC is the next version of the code update and will go into effect on January 1, 2029, resulting in greater efficiency and energy consumption reduction in new development.

In addition to improvements in energy efficiency and on-site renewable energy generation and energy storage requirements, SB 100 requires that LSEs incrementally increase their energy procurement sources to include eligible renewable and carbon-free sources. By January 1, 2046, all LSEs in California (e.g., PG&E) are required to source 100 percent of their in-state electricity sales from renewable and carbon-free sources. As a result, future development would have improved energy efficiency through compliance with the CBSC current at the time of their building application submittal and LSEs would supply electricity that is increasingly from carbon-free sources.

Moreover, consistent with EO N-79-20 and CARB's Advanced Clean Cars II Regulation, which aims for 100 percent of new passenger vehicles sold in-state being ZE (i.e., battery electric, hybrid plug-in electric, and fuel cell EVs) by 2035, more vehicles utilized by future residents and employees accommodated by the proposed Project would be EVs. Because these are not currently enforceable statewide policies, they are not accounted for in the 2045 estimates included in Table 3.6-5. In addition, the proposed General Plan 2045 includes policies that are intended to increase trips made by alternative transportation and improve infrastructure available for EVs. As a result, the proposed Project would incrementally decrease reliance on fossil fuel energy resources through 2045.

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### *Reliance on Renewable Energy*

As previously discussed, the 2025 CBSC currently requires a variety of development projects that do not meet specific exceptions or exemptions to include rooftop photovoltaic systems and BES infrastructure or otherwise match or exceed the energy-efficiency performance experienced by including photovoltaic and BES systems, as applicable. In addition, it is anticipated that each new code cycle for the CBSC will require higher performance for energy efficiency and incorporate additional requirements for on-site renewable energy and EV charging infrastructure. Future development would therefore result in a net increase from existing conditions in on-site photovoltaic electricity generation and EV charging stations and associated infrastructure, further supporting and accelerating the adoption of EVs and the use of renewable energy in future years.

Similarly, LSEs that serve future development, such as PG&E and Ava Energy, would be required to incrementally increase their energy procurement sources to include eligible renewable and carbon-free sources through 2045 under SB 100, as previously discussed. As a result, electricity consumed by future development, as well as existing structures, would rely more on renewable and carbon-free sources for electricity in future years than is experienced under existing conditions.

Moreover, the same proposed General Plan 2045 goals and policies from the Land Use (LU) Element, Mobility (MO) Element, and Open Space and Conservation (OS) Element identified under the “Energy Consumption Summary” subheading would also serve to support the use of renewable energy beyond compliance with the CBSC, including creating a walkable urban environment to encourage future residents and employees to use active modes of transportation instead of motorized vehicles.

### **Summary**

With implementation of the proposed General Plan 2045 goals and policies, in conjunction with and complementary to regulatory requirements, energy demand associated with growth under the proposed Project is expected to result in an overall decrease in per-capita energy consumption, decreased reliance on fossil fuels, and increased reliance on renewable energy, consistent with the CEQA Guidelines Appendix F, *Energy Conservation*, energy conservation goals. As such, energy consumption under the proposed Project would not be considered inefficient, wasteful, or unnecessary. Therefore, energy impacts associated with construction and operation of future development would be **less than significant**.

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**b) Would the project conflict with or obstruct a State or local plan for renewable energy or energy efficiency?**

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**Less than significant.** The state’s electricity grid is transitioning to renewable energy under California’s RPS Program. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. In general, California has RPS requirements of 52 percent of electricity delivered in the state to be generated from eligible renewable sources by 2027, 60 percent by 2030, and 100 percent by 2045.

The statewide RPS requirements do not directly apply to individual development projects, but to utilities and energy providers such as PG&E, whose compliance with RPS requirements would contribute to the State’s objective of transitioning to renewable energy. By 2030, PG&E and Ava Energy are set to meet or exceed the State’s new 60 percent renewable energy mandate set forth in SB 100.

Future projects would be required to comply with the current and future iterations of the CBSC, as applicable. Furthermore, same proposed General Plan 2045 goals and policies from the Land Use (LU) Element, Mobility (MO) Element, and Open Space and Conservation (OS) Element identified under impact discussion (a) would support the statewide goal of transitioning the electricity grid to renewable sources. Specifically, proposed Policy OS-8.6 would require the City to consider solar access during the design review process. As discussed in Section 3.17, *Utilities and Service Systems*, the net increase in energy demand associated with implementation of the proposed Project would be within the service capabilities of PG&E and Ava Energy and would not impede their ability to implement California’s renewable energy goals.

In addition, as discussed in Section 3.8, *Greenhouse Gas Emissions*, and illustrated in Table 3.8-7, *City’s CAP Consistency Analysis*, in Section 3.8, the proposed Project would be consistent with the mitigation strategies of the 2022 CAP, which aim to improve alternative modes of transportation, renewable energy resource integration in new development, and energy efficiency in new development design. Therefore, implementation of the proposed Project would not conflict with or obstruct implementation of a State or local plan for renewable energy or energy efficiency, such as California’s RPS program or the mitigation strategies of the 2022 CAP, and the impact would be **less than significant**.

### **3.6.5 Cumulative Impact Analysis**

The following discussion considers the proposed Project’s potential cumulative contribution to wasteful, inefficient, or unnecessary consumption of energy resources or to conflict with or obstruct a State or local plan for renewable energy and energy efficiency. Analysis of whether the proposed Project’s energy demand would be within PG&E’s service capacity and require new or expanded facilities is provided in Section 3.17, *Utilities and Service Systems*.

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### Would the project have a cumulative effect related to energy?

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**Less than significant.** Cumulative impacts would occur if a series of actions lead to a wasteful, inefficient, or unnecessary consumption of energy resources or a conflict with or obstruction of a State or local plan for renewable energy and energy efficiency.

All the development projects within the vicinity of the EIR Study Area are within the service area of PG&E and Ava Energy. These projects would result in a long-term increase in operational energy demand for electricity and natural gas use associated with population growth. In addition, construction activities would require the use of energy for purposes such as the operation of construction equipment and tools, and construction of development projects may overlap. However, all projects developed within the PG&E and Ava Energy service area would implement the requirements of the CBSC and CALGreen and other federal, State, and local regulations, as applicable. Furthermore, new buildings would use new energy-efficient appliances and equipment, pursuant to the Appliance Efficiency Regulations.

Future cumulative development could also increase annual VMT, and thus fuel consumption. However, vehicles would be subject to the USEPA CAFE standards for vehicular fuel efficiency, and average corporate fuel economy continues to increase as a result of State and federal laws, including the Pavley Advanced Clean Cars program. Vehicle turnover also improves the overall fuel economy of California's vehicle fleets. In addition, implementation of the proposed General Plan 2045 goals and policies would serve to reduce energy use as well as aligning with the state's goals for carbon neutrality and help ensure there would be no conflict with or obstruction of a State or local plan for renewable energy and energy efficiency. Cumulative impacts would therefore be **less than significant**.

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